



VIRGINIA DEFENSE FORCE

COMM 103A: ICOM M700/710 Pro Radio

COM 103A Purpose

Action: *The following slides give basic instruction in the following Skill Level 1 High Frequency Radio Team (HFRT) tasks as identified in the HFRT Training and Evaluation Outline (T&EO):*

- ***Place ICOM M700/710 Pro Radio into Service***

Conditions: *You are located in the desired position and with the necessary equipment to commence HF radio communications. You have been given the CEOI required for your mission.*

Standard: *The team after, completing the block of instruction, will safely set up the radio and transmit a message using correct radio procedures within 60 minutes.*

- ***SILENCE CELLPHONES**
- ***50/10 TIMEKEEPER**
- ***SIGN IN FOR CREDIT**
- ***TESTABLE**
- ***SAFETY BRIEF**





Course Objectives

At the completion of this period of instruction, you should be familiar with the following:

- ***Recognize components of ICOM M700/710 Pro Radio***
- ***Place ICOM M700/710 Pro Radio into Service***





Safety Briefing



- 1. Never erect antennas less than 2 times its length close to energized power lines.**
- 2. Never touch or be in close proximity to antennas when transmitting or burns could result.**
- 3. Always ground equipment using proper grounding techniques.**

Note: The VDF has equipped its HFRT units with two types of ICOM radios: M700 and M710 Pro Marine radios. They are interchangeable for the purposes of these tasks/lessons.



Siting Considerations



When siting the radio consider the following:

- **Length of coax and tuner cables.**
- **Shelter from elements, if outside**
- **Routing of cables, if inside.**
- **Availability of commercial electricity (shore power).**
- **Availability of tables, chairs, etc.**
- **Location of mission commander (quiet place for radio so you can hear it but also able to find the mission commander when delivering messages.**



Step 1

**Run ground lead
from a grounding
stake to back of
radio.**





Step 2

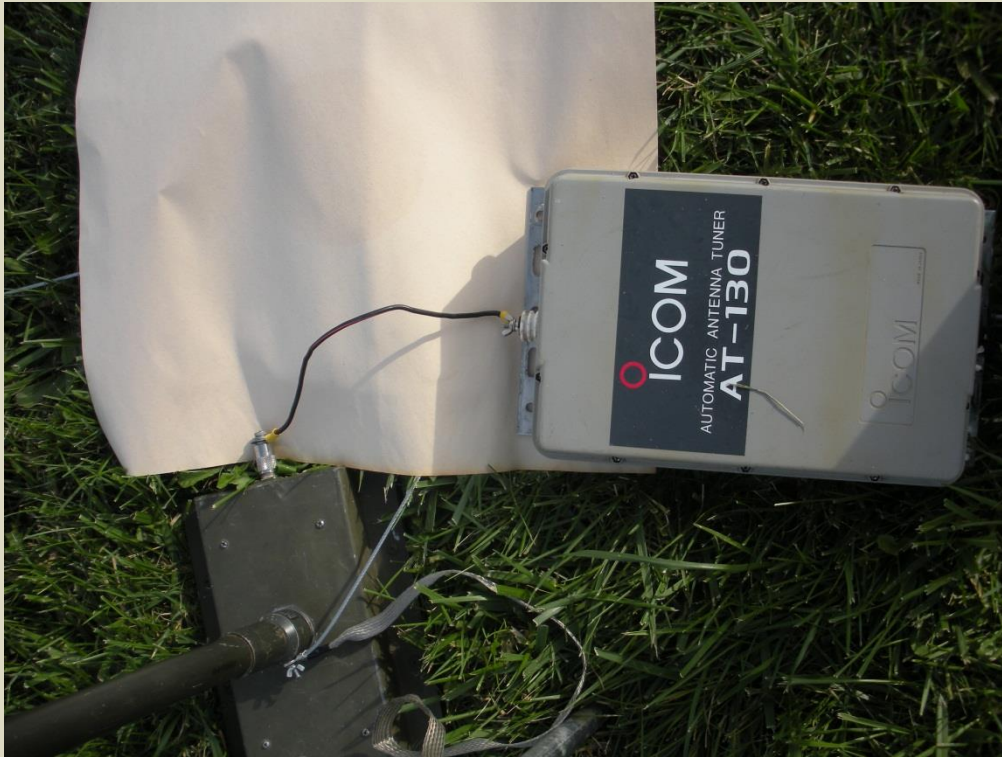
Run tuner and coax cables to radio.



Step 3

**Connect Tuner cable
to radio**





Step 4

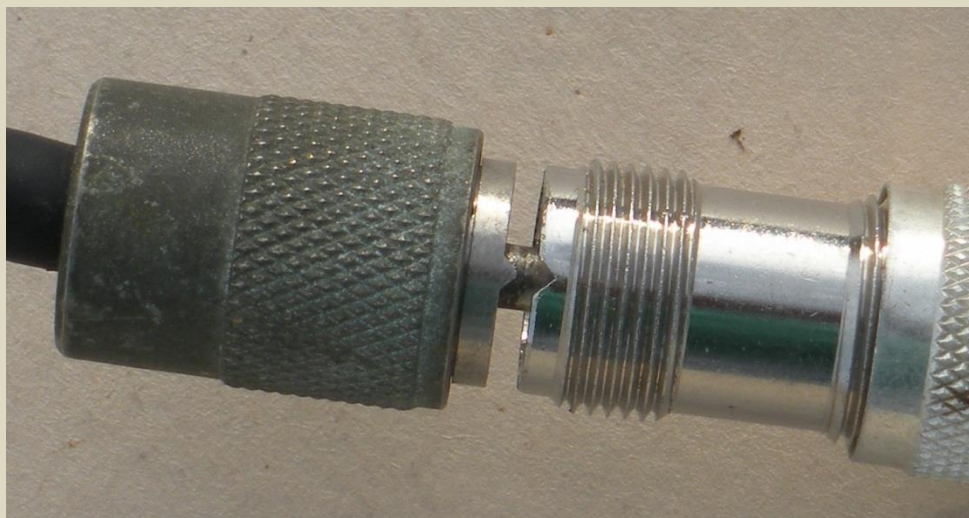
- **Connect “hot” wire from tuner to antenna base.**
- **Connect tuner ground terminal to the antenna ground via a grounding wire.**



Step 5



Connect tuner coax to antenna coax with a barrel connector. If you are going to be active during rainy weather, wrap tape around the barrel connector to waterproof it. A non-adhesive tape sold by “ham” stores is best for this application. However, if the special tape is not available, use regular electrician’s “friction” tape.



When connecting the PL-259 type of connectors, make sure the projection is inserted in the connector before turning the shell. This prevents the connector from turning and possibly breaking the wires.



Step 6

Connect the antenna coax to the radio connector.



Step 7

Connect your power source to the radio connector

Commercial (shore) Power- The radio is issued with a power supply which uses house current to produce the 12v required by the radio. To use, simply hook up the appropriate ring terminals to the power supply. Remember to pay close attention to the polarity. Black wire goes to negative connection and red wire goes to positive connection.

Battery- You can also use any 12v battery to power the radio. Car or motorcycle batteries may be used. A motorcycle battery will have less available power than a car battery. As above, pay close attention to polarity.



Step 8

Connect the power connector at the back of the radio. The connector will go together only one way. Insert the connector halves together until they “snap” together.



Step 9

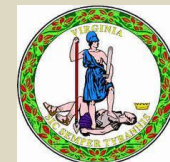
Connect the microphone to the front of the radio. Make sure that the micro-phone plug is inserted properly into the jack. Don't force the connector. Tighten the sleeve.



Step 10

Double check all connections and then power up the set.





Step 11

- **Consult the CEOI or the OPORD to determine the operating frequency.**
- **Set frequency by turning the channel knob to the required frequency.**
- **Check the initial settings:**
 - Mode = USB**
 - Group = A**
 - Squelch (SQL) = ON**
 - Tune is on (TUNE is visible)**
 - Speaker is "ON"**
- **Radio is now ready for use.**





Trouble Shooting



	PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
POWER	Power does not come on when [POWER] is pushed.	<ul style="list-style-type: none"> • Power cable is improperly connected. • Blown fuse. 	<ul style="list-style-type: none"> • Reconnect the cable securely. • Check for cause, then replace the fuse with a spare one. 	p. 18 p. 21
	No sound comes from the speaker.	<ul style="list-style-type: none"> • The [SPEAKER] switch is turned on. • Microphone is not connected. • The squelch is closed. 	<ul style="list-style-type: none"> • Turn off the [SPEAKER] switch. • Connect the microphone to the [MICROPHONE] connector. • Push the [SQL] switch to turn the squelch off. 	p. 2 p. 2 p. 9
RECEIVE	Sensitivity is too low and only strong signals are audible.	<ul style="list-style-type: none"> • Antenna is not properly matched to the operating frequency. • Wrong tuner condition is selected in set mode. 	<ul style="list-style-type: none"> • Push [TUNE] to tune the connected antenna tuner or select "automatic tuning" using set mode when an optional AT-130 is connected. • Set the proper condition for the connected tuner. 	pgs. 2, 11 p. 11
	Received audio is unclear or distorted.	<ul style="list-style-type: none"> • Wrong type of emission is selected. • AGC is deactivated while receiving a strong signal. • Noise blanker is turned on when receiving a strong signal. • The [CLARITY] control is rotated too far clockwise or counterclockwise. 	<ul style="list-style-type: none"> • Push [MODE] to select the proper operating mode. • Push [AGC] to activate the AGC function. • Push [NB] to turn the noise blanker off. • Adjust the [CLARITY] control to receive proper audio output. 	p. 3 p. 9 p. 9 p. 9
TRANSMIT	Your signal does not reach as far away as usual.	<ul style="list-style-type: none"> • Antenna tuner is improperly matched to the operating frequency when manual tuning is selected. • CW or FSK mode is selected for voice transmission. 	<ul style="list-style-type: none"> • Push [TUNE] to tune the connected antenna tuner or select "automatic tuning" using set mode. • Push [MODE] to select USB mode (or AM, R3E, etc.). 	pgs. 2, 11 p. 3
	Transmit signal is unclear or distorted.	<ul style="list-style-type: none"> • Wrong type of emission is selected. • Microphone is too close to your mouth. 	<ul style="list-style-type: none"> • Push [MODE] to select the proper operating mode. • Speak into the microphone naturally and do not hold the microphone too close to your mouth. 	p. 3 —
DISPLAY	All indicators appear and the channel number cannot be read.	<ul style="list-style-type: none"> • The highest contrast is selected in set mode. 	<ul style="list-style-type: none"> • Set to the proper display contrast. 	p. 13



Trouble Shooting

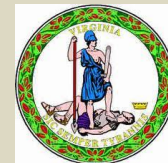


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A note about fuses: If the radio doesn't power up, check the fuses. There are three fuses used in this set, two accessible on the back of the set and one which you have to remove the cover to access.



Tips to Secure Radio



- **Break down the radio in the reverse of assembling it.**
- **Coil all cables neatly and secure with tape or string.**
- **If you are issued cases, pack the items neatly into the cases.**
- **Double check the hand receipt to make sure you don't leave anything behind.**
- **Report any problems on the DA Form 2404 so they can be fixed before re-issue.**



Operational Tips



- **If having difficulty in hearing, turn off squelch.**
- **Check radio systems by tuning to WWV (national time center) at 2.500, 5.000, 10.000 Mhz.**
- **Do not change any programming without authorization.**
- **The frequency will change according to time of day. Be prepared to change freqs as the conditions change.**
- **Ask for help as soon as you identify a problem to prevent a small problem becoming a big one!**
- **Use your T&EO to assist you in completing your mission.**



Exercise



Place the ICOM M700/710 Pro Radio Into Service





Questions?